

TORNADOES IN WISCONSIN, APRIL, 1929

By W. P. STEWART

[Weather Bureau Office, Milwaukee, Wis.]

(Condensed by the Editor)

In this month three tornadoes were observed under rather unusual meteorological conditions. Two occurred late in the afternoon of the 5th, one of which traversed the State of Wisconsin from Pierce County to Iron County, a distance of 187 miles, at a speed of 68 miles an hour.

This tornado occurred in a belt of thunder and wind storms about 250 miles in width. Pressure in this belt ranged from 29.50 to 29.70 inches from a central low pressure of 28.92 inches at Moorehead, Minn. The morning temperature was quite a bit below 70° at the morning observation. The path of great destruction varied in width from 100 to 1,200 feet, but there was more or less damage over a width of 10 to 20 miles from the path of great destruction; evidently the destruction outside of the central path was due to the storm winds of the cyclone which, as above noted, had a central pressure below 29 inches.

The third tornado entered Wisconsin from Iowa in the neighborhood of Dubuque. It occurred on the 6th and

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HAIL APRIL 21, 1929, IN KENTUCKY, ILLINOIS AND LOUISIANA

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HAIL IN LOUISVILLE, KENTUCKY

A hailstorm of unusual character and causing heavy damage visited the locality immediately northwest of this station from 2:30 to 2:45 p. m. on April 21, 1929. The center of the heaviest hail was over New Albany, Ind., where stones ranging from 2 to 3 inches in diameter fell with considerable frequency. A large quantity of smaller hail, from the size of a pea to an inch in diameter, also occurred. Near the end of the storm the ground was nearly covered with ice.

The area reached by the very large stones extended east to Jeffersonville, Ind., where the writer measured stones that were 2 to 2½ inches in diameter; and also included the northwest quarter of Louisville. The frequency of the large stones diminished as the distance from eastern New Albany increased. At Jeffersonville they fell on the average about 1 to 2 feet apart, sometimes 3 feet.

The area reached by hail of smaller size extended for about 10 miles north of Louisville, and for about 20 miles in a southerly direction; but no hail of the size given above has been reported in these outside districts. In general the largest hail in those sections was about 1 inch in diameter. Hail also occurred at many other places in the State of Kentucky and in southern Indiana. From reports received it seems that hail was exceptionally widespread in this section on that day.

There were two kinds of large hailstones, apparently formed by different methods. One was of the usual type, in which concentric layers of ice and snow make up the stone and the appearance of the mass is white. These were as large as an inch in diameter at my place in Jeffersonville, Ind. The other stones were apparently made up of a mass of smaller stones frozen together, and were nearly all ice. The rim of these stones was jagged, where smaller stones had frozen to the central mass and projected. Across the central mass of ice, without includ-

was associated with a cyclonic storm centered over northeast Colorado. In this case, also, there was a narrow belt of thunderstorms that stretched from eastern Kansas to Lake Michigan. The details of these tornadoes are given in the table on pages 165-166.

Three photographs of the River Falls tornado cloud were made by Mr. Claire Bartosh, who lives on a farm near River Falls. From the prints supplied through Mr. C. G. Stratton, cooperative observer at that station, the reproductions of Figure 1 were made. The first photograph was made at 5:50 p. m., April 5, 1929, and the remaining two within the space of 5 minutes thereafter. The lack of detail in the foreground is due to the fact that it is plowed ground. Between the plowed ground and the tornado cloud is the river valley.

The original prints are 2 by 3 inches and they have been slightly enlarged in the reproduction. The interesting feature in them is the change in the funnel cloud that took place in 5 minutes.

ing these projections, they measured 2 to 2½ inches at Jeffersonville. According to reports, they were somewhat larger at New Albany.

These stones were flat in shape, with the shorter diameter about 1 inch or slightly more. Around the rim of the stone the radial lines of the smaller stones could be seen embedded in the mass of ice. The shape of the smaller stones, of which the mass appeared to be built up, could be plainly seen in the outer one-third of the diameter of the mass. The lines of these stones radiated outward from the center of the mass, not always regularly but comparatively so. From these lines and the stones frozen on the rim and projecting, the mass seemed to be made up of stones about twice as long as they were thick and somewhat cylindrical in shape but with flattened sides. These were the outstanding features of the stones, but it is not to be understood that they were regular in shape for they exhibited marked irregularities in the way of protuberances on the flat sides and rim. The small stones that made up the mass contained much less snow than the usual hailstone. They were almost solid, clear ice. This fact accounts in part for the enormous damage caused by these stones, for they were almost as heavy as a piece of solid ice of the same size.

The heaviest damage was to greenhouses in New Albany and between New Albany and Jeffersonville. This loss alone was estimated at \$60,000 to \$70,000. Auto tops were penetrated, hoods and fenders were dented, holes were cut in metal roofs, and shingle roofs were badly damaged. Hundreds of windows were broken. The entire damage in New Albany, Jeffersonville, and the district lying between, was placed at about \$100,000. No estimate could be obtained of the damage in the northwest part of Louisville, but it is believed that \$10,000 will cover most of it. The damage in that district was mostly to automobiles, windows, and occasional roofs.—J. L. K.



Tornado at River Falls, Wis., 5:50 p. m., April 5, 1929. Bartosh Photo



Tornado at River Falls, Wis., No. 2, 5:52 p. m., April 5, 1929. Bartosh Photo



Tornado at River Falls, Wis., No. 3, made at 5:53 p. m., April 5, 1929. Bartosh Photo